

**Final Report
for the
North Tank Farm Soil
Characterization Activities
South Bay Power Plant**

**990 Bay Boulevard
Chula Vista, San Diego County, California**

Prepared for:



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Prepared by:



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March 20, 2001

Table 2 - PCB Results for Soil in the North Tank Farm of the South Bay Power Plant

Sample Location	Depth Interval (ft)	Sample ID	PCBs (µg/kg)						Notes	
			Arocolor 1016	Arocolor 1221	Arocolor 1232	Arocolor 1242	Arocolor 1248	Arocolor 1254	Arocolor 1260	
TDO-Center	2.4	TD002	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
TDO-Center	4.3	TD003	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
T6-NE	0.5	T6S001	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
T6-SE	0.5	T6S004	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
T6-SW	0.5	T6S007	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
T6-NW	0.5	T6S010	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
T6-Center	0.5	T6S013	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
T6 Composite	0.6	T6S016	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
T6 Composite	1.5 - 1.8	T6S017	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
T6 Composite	3.0	T6S018	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
T6-Center	0.5	T6S019	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0

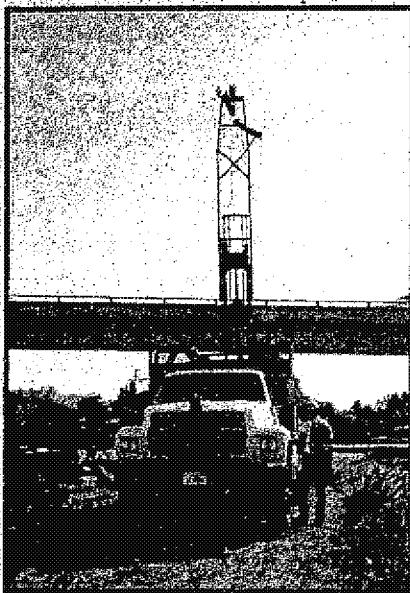
NA = Not Applicable

Bold = Concentrations above detection limit

Table 2 - PCB Results for Soil in the North Tank Farm of the South Bay Power Plant

Sample Location	Depth Interval (ft)	Sample ID	PCBs (µg/kg)						Notes			
			Arocolor 1016	Arocolor 1221	Arocolor 1232	Arocolor 1242	Arocolor 1248	Arocolor 1254	Arocolor 1260	Arocolor 1262	Arocolor 1268	
T4-SE	0.5	T4S001	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
T4-SW	0.4	T4S002	< 400	< 400	< 400	< 400	< 400	< 400	< 400	< 400	< 400	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
T4-NW	0.3	T4S003	< 400	< 400	< 400	< 400	< 400	< 400	< 400	< 400	< 400	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
T4-NE	0.2	T4S004	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
T4-Center	0.3	T4S005	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
T4-Composite	1.5 - 2.0	T4S017	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
T4-Composite	3.0	T4S018	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
T4-SW	0.4	T4S019	< 400	< 400	< 400	< 400	< 400	< 400	< 400	< 400	< 400	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
T5-NW	0.5	T5S001	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
T5-SW	0.5	T5S004	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
T5-SE	0.5	T5S007	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
T5-NE	0.5	T5S010	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
T5-Center	0.5	T5S013	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
T5-Composite	0.5	T5S016	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
T5-Composite	0.5	T5S017	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
T5-Composite	3.0	T5S018	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
T5-NW	0.5	T5S019	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	R-07-The reporting limit for this analyte has been raised to account for extract appearance.
IDO-Center	0.5	ID001	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	R-07-The reporting limit for this analyte has been raised to account for extract appearance.

SUPPLEMENTAL
ENVIRONMENTAL SITE ASSESSMENT
SOUTH BAY POWER PLANT
990 BAY BOULEVARD
CHULA VISTA, CALIFORNIA



Geotechnical
and
Environmental
Sciences
Consultants

Ninjo & Moore

EXECUTIVE SUMMARY

This supplemental Phase II environmental site assessment consisted of nine direct-push soil/groundwater sampling points, three soil only sampling points, and the sampling of one existing groundwater monitoring well. This work was done to further evaluate and characterize subsurface conditions in four areas of the South Bay Power Plant (SBPP) to supplement a Phase II environmental site assessment performed earlier this year by Fluor Daniel GTI.

Our analytical data suggest that the drainage ditch received metals and polychlorinated biphenyls (PCBs) in the past. The concentrations of metals in soil were generally higher where the stormdrain discharges into the ditch; elevated concentrations were not detected at the outfall into Telegraph Creek. The elevated concentrations occurred in one sample location of the two tested in the drainage ditch. At the present, we do not recommend further action based on the isolated occurrence and the metal concentrations encountered. However, if soil disturbance for redevelopment or other reasons is planned, further analysis of soil in the drainage ditch should be performed to assess impacts to construction operations and to evaluate disposal of the disturbed soil.

Soil samples from the Hazardous Materials storage area, North Tank Farm and South Tank Farm did not contain elevated metals, except for a single elevated barium concentration in a sample collected from the North Tank Farm area. Volatile organic compounds, semivolatile organic compounds, and PCBs were not detected in soil or groundwater at these areas.

In addition to possible mitigation of soil in the drainage ditch, our conclusions are consistent with the previous conclusions of Fluor Daniel GTI:

- Jet Fuel Tank Area: Mitigate free-phase fuel hydrocarbons that are present on groundwater;
- First Generation Surface Impoundments: Mitigate potential soil and groundwater contamination from metals and hydrocarbons;
- Underground Storage Tank Area in the southeast part of the SBPP: Mitigate benzene concentrations in groundwater that exceed Regional Water Quality Control Board criteria;
- Trichloroethene and 1,1-dichloroethene in groundwater: Based on the results of the ongoing evaluation of the chlorinated solvents plume in the eastern part of the SBPP, mitigation options may be considered. The reported concentrations from previous assessments are below typical action levels for these compounds.
- East Loop: Evaluate a soil remediation approach for fuel hydrocarbons greater than 1,000 milligrams per kilogram.
- National City Terminal Fuel Handling Facility: Evaluate a soil remediation approach for shallow fuel hydrocarbon contamination exceeding 100 milligrams per kilogram.

Ninyo & Moore 5710 Ruffin Road San Diego, CA 92123	Date Sampled: 10/13/98 Date Received: 10/13/98 Date Prepared: 10/13/98 Date Analyzed: 10/14/98
Sierra Project No.: 9810-164	Analyst: LT
Client Project ID.: Port/SBPP/103557-07	
Sample Matrix: Soil	Report Date: 10/15/98

POLYCHLORINATED BIPHENYS-PCB
EPA METHOD 8080

Client Sample No.:	Concentration, mg/kg				Method Detection Limit, mg/kg
	HM-001-S2'	HM-002-S1.5'	HM-002-S12.5'	HM-002-S16'	
Sierra Sample No.:	15049	15052	15053	15054	
COMPOUNDS:					
PCB 1016	ND	ND	ND	ND	0.02
PCB 1221	ND	ND	ND	ND	0.02
PCB 1232	ND	ND	ND	ND	0.02
PCB 1242	ND	ND	ND	ND	0.02
PCB 1248	ND	ND	ND	ND	0.02
PCB 1254	ND	ND	ND	ND	0.02
PCB 1260	ND	ND	ND	ND	0.02
Dilution Factor	1	1	1	1	QC Limits
% Surrogate Recovery: Dibutyl Chlorandate	97	100	105	80	42-147

Quality Assurance/Quality Control Data							
QC Sample ID:	9810-154						
Compounds	LCS % Rec.	QC Limits	Spike % Rec.	Spike Du % Rec.	QC Limits	RPD	QC Limits
PCB 1260	99	80-120	90	95	50-150	5.0	0-30

ND means Not Detected

Reporting Limit (RL) = Method Detection Limit (MDL) x Dilution Factor

**Environmental Due Diligence Program
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South Bay Power Plant

**Phase II Environmental Site Assessment
Volume 2 - Book 1 - Text, Figures and Tables
Chula Vista, CA**

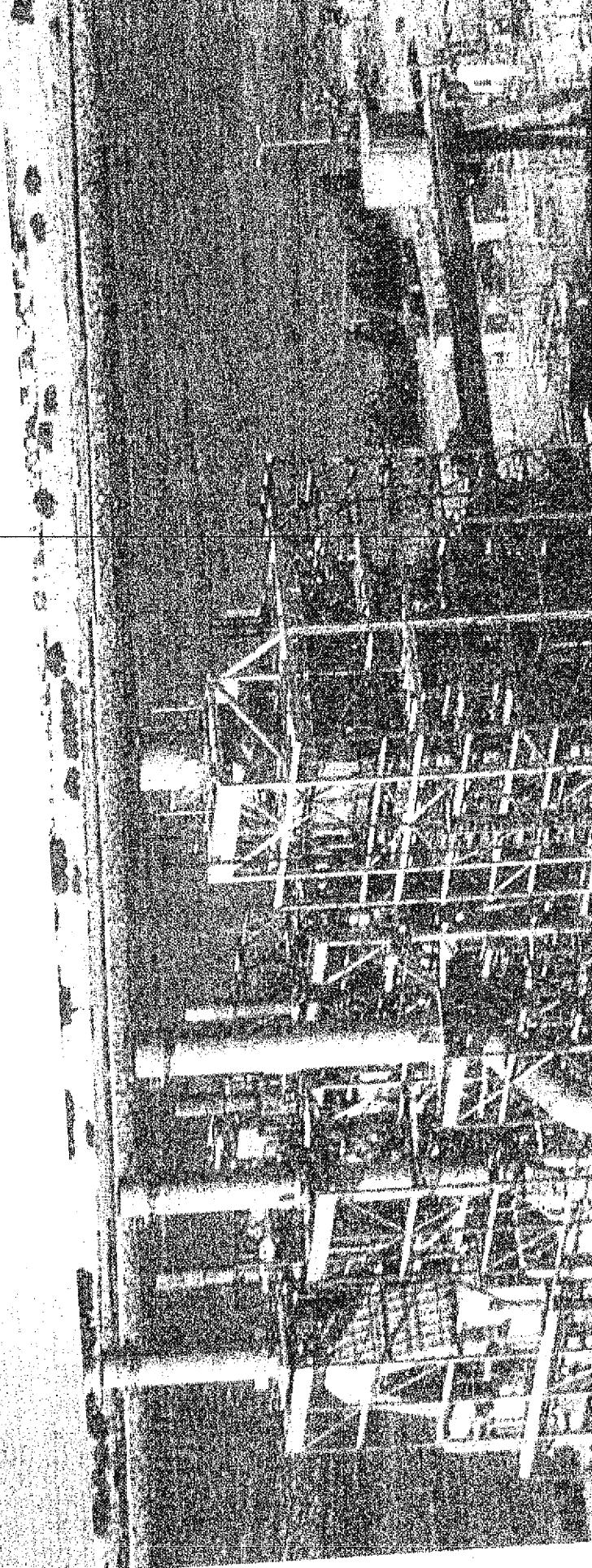


TABLE 3-4
 Baseline Soil Results for TEH and Organics
 EPA Method 418.1, 8015M, 8020, 8081, 8260, 8270, 8310
 Phase II Environmental Site Assessment
 South Bay Power Plant

Analyte	Number of Samples	Number of Detections Above Reporting Limit ³	Number of Detections Below Reporting Limit ³	Maximum Conc. Detected	Location Of Maximum Conc. Detected	Normal Arithmetic Mean	Normal Standard Deviation	Normal Upper 95% Confidence Level
Total Extractable Hydrocarbons ⁴	523	266	33	8300	SB29	46.5	406.7	75.9
Volatile Organic Compounds (VOCs)								
Ethylbenzene ²	107	1	1	3.5	SB1-070A@8.5-9	0.04	0.34	0.09
Xylenes ²	107	2	2	7.5	SB1-070A@8.5-9	0.09	0.74	0.21
Polychlorinated Biphenyls (PCBs)								
Aroclor 1260	278	0	1	0.046	SB5-05@0.5-1	0.025	0.001	0.025
Aroclor 1254	278	1	2	0.171	SB5-05@1.5-2	0.025	0.009	0.026
Aroclor 1248	278	0	1	0.025	SB5-06@2@4-5	0.025	0	0.025
Aroclor 1242	278	1	0	0.088	SB5-04@2@4-5	0.025	0.004	0.026
Polynuclear Aromatic Hydrocarbons (PAHs)								
Naphthalene ²	122	2	0	0.16	SB1-07@9-10	0.016	0.028	0.02
Acenaphthene ²	34	1	0	0.23	SB3-02@3.5-4.5	0.05	0.04	0.06
Semivolatile Organic Compounds (SVOCs)	10	1	0	0.001	SB4-01@4-5	0.002	0.003	0.004
Bis (2-ethylhexyl) phthalate								

TEH and Organics detected at least once are shown in this table. All other compounds were non-detected. For a complete list of analytes from Phase II ESSA, please refer to Appendix G-5.
 For a list of analytes from previous investigations, please refer to Appendix G-5.

Footnotes:

1 - concentration is in mg/kg

2 - compound was analyzed under multiple methods.

3 - reporting limit for a sample is the method reporting limit times the dilution factor required for the sample due to matrix interference

4 - also includes TPH and TRP14 reported by EPA Methods 8015M and 418.1.

Table 6-2
Soil Screening Risks and Selection of Chemicals of Potential Concern in Subsurface Soils for Exposure Area "A"
Phase II Environmental Site Assessment
South Bay Power Plant

Analyte	Number of Samples	Number of Defects	Frequency of Detection	Maximum Detected Concentration (mg/kg)	Site Concentration (mg/kg)	Residential Dose (mg/kg)	Chemical Specific Risk	Chemical Specific Hazard Index	Reference	
CARCINOGENS										
Inorganics	187	124	66.3%	53.66	4.21	0.38	1.11E-05	na	Yes	
Arsenic	187	184	98.4%	5000.00	136.67	210	6.51E-07	na	No	
Chromium (total)	187								Chemical Specific Risk is greater than 1E-06	
Semi-volatile Organic Compounds (SVOCs)									Chemical Specific Risk is less than 1E-06	
Bis(2-ethylhexyl)phthalate	10	1	10.0%	0.004	0.001	32	3.13E-11	na	No	
Polychlorinated Biphenyls (PCBs)	124	2	1.6%	0.201	0.033	0.20	1.65E-07	na	No	
Antimony 125.4									Chemical Specific Risk is less than 1E-06	
NON-CARCINOGENS										
Inorganics										
Antimony	187	23	12.3%	37.80	5.49	30	na	0.183	Yes	
Barium	187	136	72.7%	243.90	60.75	5200	na	0.0112	No	
Beryllium	187	7	3.7%	81.93	1.68	150	na	0.0123	No	
Cadmium	187	20	10.7%	2.44	1.11	9	na	0.123	Yes	
Cobalt	187	129	69.0%	146.34	7.10	710	3300	na	No	
Copper	187	137	73.3%	317.07	14.65	14.65	2800	na	0.0005	No
Lead	187	156	83.4%	231.71	12.15	130	na	0.0093	No	
Mercury	137	33	24.1%	1.46	0.10	22	na	0.0005	No	
Molybdenum	187	6	3.2%	10.61	4.20	370	na	0.011	No	
Nickel	187	170	90.9%	2707.32	76.24	150	na	0.508	Yes	
Thorium	187	8	4.3%	7.44	1.98	na	na	na	No	
Vanadium	187	186	99.5%	2560.98	100.83	520	na	0.194	Yes	
Zinc	187	137	73.3%	987.80	39.11	22000	na	0.002	No	
Volatile Organic Compounds (VOCs)										
Ethylbenzene	97	1	1.0%	4.32	0.13	230	na	0.001	No	
Xylenes	97	3	3.1%	9.26	0.28	280	na	0.001	No	
Polynuclear Aromatic Hydrocarbons (PAHs)										
Acenaphthene	3	1	33.3%	0.29	0.07	2600	na	0.00003	No	
Naphthalene	44	1	2.3%	0.22	0.02	55	na	0.00036	No	
Total Screening Hazard Index										
								1.152		

na - not applicable